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Space Blast Could Ruin Communications

Pentagon officials have yet another nightmare, and it's no pipe dream: A nuclear explosion in space could cripple the multibillion-dollar commercial satellite network the military uses for its worldwide communications.

The nuclear explosion could be intentional—a test by some aspiring member of the "nuclear club"—or accidental, as the malfunction of a nuclear generator used to power a reconnaissance satellite. Or it could be a deliberate "accident" staged by the Soviets, who agreed with the United States in 1963 to stop above-ground nuclear testing after a number of satellites were damaged.

Details of the Pentagon's concern are spelled out in an internal Defense Communications Agency study completed three years ago. Our associate Donald Goldberg obtained a copy.

"There exists today a very real concern that the current generation of commercial satellites with their extensive use of solid state devices [is] significantly more susceptible than the Early Bird," the report states. The reference was to satellites launched into the early 1960s that used vacuum tubes. Newer, solid-state equipment is believed to be much more vulnerable to the electromagnetic pulse of a nuclear blast.

"Compounding this increased susceptibility," the report continues, "is an unstable global environment wherein a proliferation of Third World powers have, or are well on their way to having, the capability to test a nuclear device in space. These countries are not constrained by the current nuclear test ban agreements."

The report then warns bluntly: "Such a test, whether intended to do so or not, could deliver a decisive blow to our commercial satellite assets, severely or totally disrupting our national telecommunications system."

Any adversary with the necessary liftoff power could stage an apparent nuclear accident. "This threat pertains to any device tested in low Earth orbit by a Third World country or intentionally by the Soviet Union to test the survivability and endurance of our commercial satellite services," the report states.

Another threat would be a high-altitude explosion near the "geosynchronous" orbits used by most communications satellites.

"Such an event would, could, possibly destroy the entire fleet [of satellites]," the report states.

A Pentagon task force considered three approaches to the problem—and discarded them as either too expensive or ineffective:

- Wait for the worst to happen and replace the damaged satellites. But replacement could cost $5 billion and would take five to 10 years.
- Store spare satellites in orbit, ready to turn on. But these, too, would be vulnerable while waiting in the bullpen.
- Launch a fully protected military satellite system of three $100 million satellites. But they would be "neither affordable nor survivable."

The study's final recommendation was obvious, if vague: "Harden" future commercial satellites with built-in protection against nuclear effects. What this protection would consist of, and who would pay for it, are yet to be determined.